



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

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DENVER, COLORADO 80202-2466



000020095

Ref: 8HWM-FF

OCT 13 1992

Mr. Frazer Lockhart
Department of Energy
Rocky Flats Office
P.O. Box 928
Golden, Colorado 80402-0928

RE: Technical Memorandum No. 9, Toxicity Constants
Operable Unit 1

Dear Mr. Lockhart:

The above referenced document has been reviewed by the U.S. Environmental Protection Agency (EPA), and its contractor, PRC Environmental. The comments generated through this review are generally in regards to missing toxicity constants and calculations which will not necessitate a great deal of revision to the submitted document. For this reason, EPA hereby approves this document on the condition that it is revised in accordance with the enclosed comments.

If you have any questions regarding these comments, please contact Gary Kleeman at 294-1071.

Sincerely,

Martin Hestmark, Manager
Rocky Flats Project

Enclosure

cc: Gary Baughman, CDH
Joe Schieffelin, CDH
Bruce Thatcher, DOE
Scott Grace, DOE
Dennis Smith, EG&G

ADMIN RECORD

A-DU01-000681

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GENERAL COMMENTS

As stated in EPA's comments on Technical Memorandum No. 8, the Toxicity Equivalency Factor (TEF) approach for PAH's is not approved national policy. For this reason, risk estimates with PAH's should include calculations using the standard EPA method of equating all PAH's equivalent to benzo(a)pyrene in toxicity, as well as calculations based on the TEF approach.

Technical Memorandum No. 9 presents toxicity constants for COCs identified in Technical Memorandum No. 8. However, the results presented in Technical Memorandum No. 8 to select COCs were flawed by the use of incorrect statistical tests, incorrect toxicity values, and the omission of background data. Therefore, the list of COCs presented in Technical Memorandum No. 9 may not be complete or accurate. Until the errors in Technical Memorandum No. 8 are resolved, all chemicals identified at OU 1 should remain in the baseline risk assessment. These chemicals include chrysene, dibenzofuran, and indeno(1,2,3-cd)pyrene.

Toxicity constants for dermal exposure have not been presented in this document. These values should be calculated according to guidelines in Appendix A of Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Method, Part A (EPA, 1989).

Toxicity constants for several chemicals are missing. The risk assessor should consult EPA Region 8 and the EPA Office of Health and Environmental Assessment (OHEA) for guidance regarding values not listed in the Integrated Risk Information System (IRIS) (EPA, 1992a) or in the Health Effects Assessment Summary Tables (HEAST) (EPA, 1992b).

SPECIFIC COMMENTS

1. Page 6, Table 2-1. Several chemicals are missing reference dose (RfD) and reference concentration (RfC) values. The following values can be found in HEAST Tables 1 and 2:

The chronic oral RfD for 1,1,1-trichloroethane is 9.0×10^{-2} with an uncertainty factor of 1,000. The RfC for this chemical is 1.0×10^0 with an uncertainty factor of 1,000. The RfD for 1,2-cis-dichloroethene is 1.0×10^{-2} with an uncertainty factor of 3,000. The RfC for trichlorofluoromethane is 7.0×10^{-1} with an uncertainty factor of 10,000. The RfC for dichlorodifluoromethane is 2.0×10^{-1} with an uncertainty factor of 10,000.

2. Page 8, Section 2.2.1. The document states that cancer risks from exposure to multiple carcinogens across all exposure pathways will be summed. Although this approach

is acceptable according to RAGS, several limitations to this approach must be considered. These include that probability distributions are not strictly additive and that the action of two different carcinogens might not be independent. Additionally, substances with different weights of evidence of carcinogenicity will be treated as if they had equal weights. These limitations should be acknowledged and suggestions in RAGS should be followed.

3. Page 9, Table 2-2. The oral slope factor for trichloroethene appears in a previous version of HEAST (EPA, 1991). Also found in this version of HEAST is the oral slope factor for tetrachloroethene (5.1×10^{-2}) and the inhalation slope factor for trichloroethene (1.7×10^{-2}), both of which should be included in Table 2-2.

The equation for converting unit risks to inhalation slope factors is not presented or referenced. It should be presented in the text or in the table legend.